

## Chapter 2: Measures, products and systems

### Chapter Summary:

The Green Deal and the Energy Company Obligation (ECO) will work in combination to drive the installation of energy efficiency improvements, commonly referred to as “measures”. The focus of each will, however, be different, and as a result, so will the measures falling within each’s scope.

This chapter describes proposals for determining the qualifying measures for the Green Deal and ECO. Initial points to note are that:

- where measures fall within the Green Deal and ECO, both financing streams can combine to cover the up-front cost of the improvements;
- there are two proposed “obligations” under the ECO - the Carbon Saving Obligation and the Affordable Warmth Obligation and will have a different focus and cover different measures<sup>21</sup>;
- the Product Assurance proposals apply to products and systems installed through the Green Deal and/or the ECO;
- the Green Deal covers domestic and non-domestic properties, whilst the ECO covers domestic properties.

The Green Deal has been designed to finance, or part finance, the installation of a broad range of measures, products or systems. Provided “measures” have been “recognised”<sup>22</sup> as being capable of improving the energy performance of a building, they are eligible for Green Deal finance. The Golden Rule is the principle which limits the amount of Green Deal finance that a provider can attach to the electricity bill to the estimated energy bill savings that are likely to result from the installation of measures under the Green Deal plan.

Only products which fall within a category of “qualifying energy improvement” recommended by a Green Deal Assessment can be installed with Green Deal finance. We will encourage customers to take up “packages” of recommended measures. The amount of Green Deal finance available can be calculated on the basis of the total estimated fuel bill savings for the “package” of recommended measures. The “Carbon Saving obligation” within the ECO is intended to focus on the delivery of insulation measures which will not be delivered by Green Deal Finance alone. This means harder-to-treat properties that require more complex

<sup>21</sup> Although there may be some overlap.

<sup>22</sup> See section 2.2 for an explanation of the term “recognised”.

solutions. Insulation systems for solid walls are expected to play a major role, but views are invited on the position of other measures that might need additional support.

We propose that non-insulation measures would only be supported under the Carbon Saving Obligation where delivered as part of a package that includes insulation for a harder to treat-property.

It is proposed that ECO's "Affordable Warmth obligation"<sup>23</sup> should allow for any measure which can demonstrate that it contributes to the objective of allowing households to heat their homes at a lower cost and therefore more affordably. Heating systems and insulation measures are likely to be the core focus. Views are invited on whether provisions should be put in place to ensure major measures are delivered to households under the Affordable Warmth obligation.

A measure will only be able to count towards<sup>24</sup> a supplier's ECO obligation where it is "additional", that is, it would not have been installed without a supplier promoting and installing the measure under the ECO. The intention is not, however, to preclude other sources of funding, particularly Green Deal finance, contributing towards the installation of the measure. Even where a measure is promoted and installed under the ECO with financial assistance from the Green Deal the intention is for the supplier promoting the measure to receive the full carbon or cost savings of the measure.

All products and systems installed under the Green Deal or the ECO (or both) must be quality "assured". Only products that meet the requirements of the Green Deal Code of Practice can be installed. A process will be in place from Summer 2012 for manufacturers and suppliers to confirm that their products and systems comply with the Code – that they are "Green Deal ready".

"Green Deal ready" products and systems will be listed by the Green Deal Oversight Body, whose services, we intend to procure. A representative sample number of "listed" products will be "spot-checked" by the Oversight Body for compliance with the Code and could be struck off the list if they are found not to comply.

<sup>23</sup> In the accompanying draft ECO Order the "Affordable Warmth obligation is referred to as the "home heating cost reduction target" or the "home heating cost reduction obligation". The former is the overall target set for all suppliers whilst the latter is a supplier's individual component of the overall target.

<sup>24</sup> A measure which counts towards meeting a supplier's ECO obligation is called a qualifying action in the draft order. A "carbon qualifying action" is a measure which will count towards a supplier's carbon emissions reduction obligation under the Order whilst a "heating qualifying action" is one that will count towards a supplier's home heating cost reduction obligation.

## 2.1 Introduction

1. Our ambition is to enable as many households and businesses as possible in Great Britain, to benefit from energy efficiency improvements in the most cost-effective way<sup>25</sup>. In line with this ambition, the Green Deal has been designed to finance a broad range of energy efficiency improvements, and to promote the installation of these as a package.
2. The Green Deal is based on a key principle that certain energy efficiency improvements can pay for all or part of their installation cost through the resulting savings on fuel bills. Many improvements have the potential to create significant fuel bill savings. For example, by insulating the external wall of a solid walled three-bed semi detached house, savings of between £250 and £550 can be achieved.
3. The specific objectives of the measures framework are to:
  - ensure products installed with Green Deal finance and ECO support are high quality;
  - promote the installation of as many packages of measures as possible that will improve energy efficiency and as a result deliver deep cuts in carbon emissions;
  - drive innovation in new products and materials and;
  - help consumers understand how they can realise actual fuel bill savings over time.
4. This chapter describes the framework for determining whether a “measure” or package of measures can be financed under the Green Deal and/or is eligible for ECO support.

### Policy approach

5. Working closely with industry representatives from a range of sectors, the Green Deal has been designed to finance the installation of a broad range of technologies that can improve the energy efficiency of the building stock in Great Britain.
6. Our approach to developing policy on the scope of the Green Deal and on product assurance has been to build on existing frameworks and standards as far as possible, and to develop the requirements in accordance with EU law. This means that in many cases, those wishing to supply into the Green Deal and ECO will have already met the requirements set out in the Code of Practice.

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<sup>25</sup> The Devolved Administrations also have energy efficiency action plans. In Scotland, there is a target to reduce energy consumption by 12% by 2020.

## 2.2 Green Deal Measures

7. A Green Deal measure is an energy efficiency improvement made to a property which has been financed through the Green Deal<sup>26</sup>. This includes part-financing, where a customer pays for some of the work up-front themselves. For example a customer may chose to pay for some of the cost of a replacement boiler themselves and finance the remainder through the Green Deal. Alternatively the household may be eligible to receive support through the ECO for certain types of measures. See section 2.3 for proposals on which measures the ECO will support.
8. This arrangement means that even those measures which do not yet create enough fuel bill savings to fully off-set their costs can still benefit from Green Deal finance.
9. Measures in this context refer to those which can be installed in homes and non-domestic properties. Although certain measures will be more appropriate to non-domestic buildings the broad principles set out below apply to both. See paragraphs 28 to 30 for the proposed approach to defining qualifying improvements for non-domestic buildings.

### Measures qualifying for Green Deal finance

10. Measures which have been “recognised” as being able to improve the energy performance of buildings and generate fuel bill-savings, and have been specified by the Secretary of State as being qualifying energy improvements, can qualify for Green Deal finance<sup>27</sup>.
11. The Green Deal (Specified Energy Efficiency Improvements and Qualifying Energy Improvements) Order will list the measures that are “recognised” in the Government’s Standard Assessment Procedure (SAP) for domestic properties as meeting this requirement. This is the “pool” of measures that Green Deal assessors will draw from to make property-specific recommendations.
12. The ability for a measure to create savings on the fuel bill is a crucial requirement. Without this, there is no possibility that the savings can be used to pay for the improvements.

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<sup>26</sup> This does not preclude consumers from using aspects of the Green Deal framework, such as “Green Deal Ready” products and installing them using alternative financing routes.

<sup>27</sup> Paragraphs 22 to 26 discuss how DECC proposes to determine which measures can create fuel bill savings.

**Box 1: Definitions**

A “measure” means an energy efficiency improvement made to a property, for example, loft insulation, cavity wall insulation or replacement boiler.

“Product” means the product that is installed (falling within a category of qualifying energy efficiency improvement).

“System” means a measure which is made up of component parts which is often constructed or put together on-site, such as external wall insulation systems.

It is also worth noting that the Energy Act 2011 makes clear that the Green Deal may cover measures which generate renewable energy in a cost-effective way, as well as those termed “energy efficiency” measures.

Energy efficiency will often be used as short-hand for the types of measures which can lower energy bills and therefore be eligible for the Green Deal, even if not all such measures technically reduce energy use or increase its efficiency. For example, microgeneration will use renewable sources of energy (such as the air, sun and ground heat) to generate energy and this ultimately results in fuel bill savings.

13. The second requirement is that the measures must have been recommended during the Green Deal Assessment, to ensure the measures installed are appropriate for the building in question.
14. The level of fuel bill savings in a home or non-domestic property resulting from making an improvement will depend on many factors such as the type of building and what the measure is replacing. For example, if a person installs a package of measures including energy efficient glazing, the difference in the saving on the fuel bill will depend on the overall thermal performance of the building and how well the previous windows performed. As a result, the fact that measures may not create savings, or the same level of savings in every type of property or scenario, does not exclude them from Green Deal eligibility.
15. The amount of finance a package of measures can attract will be determined by the total estimated fuel bill savings that can be achieved in that type of property. The cumulative estimated savings for the package of measures will set the upper limit on the amount of finance available. The savings estimate will be set out on the EPC produced during the Green Deal Assessment and be used by the Green Deal Provider in order to work out how much finance can be offered under the Golden Rule and provide the customer with a quote.

16. This means that, where a package includes a measure which is particularly cost-effective, the Green Deal Provider may be able to rely on the savings likely to be generated by that improvement to finance some slightly less cost-effective improvements under the Green Deal Plan which would otherwise have required top up finance from another source.
17. Chapter 4 discusses the Golden Rule and chapter 3 sets out the role of the Green Deal provider in more detail. See also section 2.4 on proposals to enable the performance of products to be recognised for the purposes of the Golden Rule calculation.

### **Defining which “measures” can create fuel bill savings**

18. Our proposed approach is to assume that measures which are recognised as improving the energy performance buildings have the potential to save energy and/or reduce the amount a customer has to pay to heat or generate energy in their building.
19. For domestic retrofits the Reduced Data Standard Assessment Procedure (RdSAP) assessment tool, used to produce EPCs for homes, already contains a list of approximately 30 measures which can improve the energy performance of buildings. The list of measures in RdSAP has been used to create the list of qualifying Green Deal energy improvements. Being modelled in RdSAP also means the measure can be recommended by Green Deal assessor.
20. It is important that the list of qualifying improvements can be added to as new measures come onto the market or new evidence of improved performance becomes available. There are certain measures which are not modelled in RdSAP, such as energy efficient taps and showers<sup>28</sup>, that DECC’s Call for Evidence on the Costs and Benefits of Measures (March 2011) suggests have the potential to be included. See paragraphs 31-34 for how DECC intends to enable new measures to be added to the list on an annual basis.
21. DECC is also working with the Building Research Establishment (BRE)<sup>29</sup> and industry representatives to investigate whether District Heating systems can be incorporated into the Green Deal.

### **Non-domestic measures**

22. The Simplified Building Energy Model (SBEM) will form the basis for the assessment of non-domestic properties (see section 1.3), and assessors have

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<sup>28</sup> Which also reduce water consumption.

<sup>29</sup> The BRE currently administers SAP and RdSAP for Government.

much greater flexibility to recommend appropriate measures to reflect the wider range of non-domestic building types.

23. Our proposed approach is to have a single list of qualifying energy efficiency improvements for domestic and non-domestic buildings. In some cases, recommendations will be similar in domestic and non-domestic properties, such as a shop converted from a dwelling. In practice, certain measures will not be recommended for different types of building, as they are not appropriate or are not modelled in the appropriate methodology (SBEM or SAP).

24. However, we invite consultees to inform us of other measures which have particular relevance for non-domestic buildings which are not already listed in Annex A<sup>30</sup>. For example, Heating Ventilation and Air Conditioning (HVAC) systems, energy efficiency taps and showers<sup>31</sup> and low energy lighting should make much more significant energy savings in larger non-domestic buildings due to the scale of the retrofit. Our intention is therefore to include low energy lighting, systems and controls in the non-domestic Green Deal. It is more difficult to model standard energy saving estimates for lighting systems and controls in domestic properties, and at present these measures are not included in RdSAP. Energy efficient lighting can be recommended on domestic EPCs, and householders can fund these as part of the overall energy efficiency improvement package.

**QUESTION 8: Which measures should be added to the list of qualifying measures in Annex A for non-domestic properties, and what evidence is there that these measures improve the energy performance of buildings?**

### **The process for adding new measures to the list of qualifying improvements**

25. A process for adding new measures to SAP already exists<sup>32</sup>, called “Appendix Q”. Through this process an organisation can apply to have their measure included. The performance of the measure is tested or verified and, if deemed appropriate, the measure is modelled in SAP.

26. Our intention is to use this mechanism to determine which new measures can create fuel bill savings and what the level of the savings estimate should be. Measures which make it through Appendix Q will be added to the list of qualifying improvements in legislation and in RdSAP on an annual basis.

27. DECC will work with the BRE and industry to ensure that the Appendix Q process is reviewed periodically to ensure burdens are kept to a minimum. However, in

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<sup>30</sup> List of Green Deal Qualifying Improvements.

<sup>31</sup> Which also reduce water consumption

<sup>32</sup> An “Appendix Q” process is also being developed for SBEM.

our view it is, appropriate that measures are subject to full and proper testing and/or independent verification of their performance for the Green Deal, as the savings estimates determine the level of finance available.

28. DECC will also develop a process to review the evidence on the costs and benefits of measures on an annual basis and to adjust assumptions in SAP and RdSAP as appropriate. We intend to create a new “modifications committee” of independent experts to make recommendations on the treatment of new measures and what changes to SAP and RdSAP need to be made.

**QUESTION 9: Will the existing Appendix Q process, which will allow new measures to be added to the Green Deal assessment tools, and to the list of qualifying improvements, support innovation in the market and how could the process be improved? In particular, what support could SMEs benefit from?**

### **Recommendations to the customer**

29. Measures recommendations will be set out on an improved EPC produced during the Green Deal assessment. The measures recommended will differ from property to property. What is appropriate for a property depends on a number of factors including the type and age of construction and measures already installed.

30. The annual estimated energy savings for the measures and indicative costs will be given. This will help consumers see the benefits of making the improvements. The EPC will also be used by Green Deal Providers to see which measures have been recommended and the savings estimates. The EPC will include a “package” of measures that can potentially be financed through the Green Deal.

### **Promoting a “package” approach**

31. Package approaches have the potential to deliver significant savings to consumers on their energy bills. The recommendations on the EPC will promote the installation of the full package of measures recommended. Green Deal Assessors and/or Providers will also be asked to provide their Green Deal customers with an official advice leaflet on the additional benefits of installing packages of measures and making energy efficiency improvements in an appropriate order. We are working with the supply chain to see how “all in one visit” approaches to installation can be supported.

32. The consumer may experience less disruption if a full package of measures is installed in one visit. However, it is recognised that there will be circumstances where the installation of a full package of measures is not appropriate, for example, where a highly disruptive installation does not fit with other changes to

the property. For example, some people may feel internal wall insulation would not be sensible soon after a new kitchen has been fitted (although in the future we will want Green Deal to be a consideration before other work).

33. The framework allows for customers to choose to install measures over time and to take out more than one Green Deal. In this situation the Green Deal Provider should set out how this approach would affect the amount of finance that would be available.

## **2.3 ECO eligible measures**

34. Energy companies will receive credit towards their ECO obligations for funding the delivery of energy efficiency measures. However, it is crucial that the policy supports the delivery of measures which make a real and substantial difference to households and which would not have been delivered without ECO support.

### **Carbon Saving obligation - Measures**

35. Previous government programmes have driven significant delivery of the cheaper insulation measures like loft and cavity wall insulation. However, opportunities still remain for these extremely cost effective technologies and Green Deal will allow households to insulate their homes with low cost cavity wall and loft insulation at no upfront cost.
36. Almost a quarter of GB homes either have solid walls or are of a construction type suitable for the various types of SWI and this technology could help reduce UK emissions considerably. However uptake has been very low as a result of the much higher upfront costs, including the 'hassle' costs, and limited support from government programmes.
37. When a household takes out Green Deal finance to cover the costs of making their home more energy efficient, the costs and benefits of the technologies stay with the occupiers of the home, while financial assistance provided for measures under ECO is likely to be funded through a cost passed on to all bill payers. To ensure the costs to all energy consumers are minimised, there is an argument for designing ECO in such a way as to ensure that Green Deal finance supports as high a proportion of the costs of technologies as possible (effectively defined by the Golden Rule) and that ECO financial assistance is focused on those measures and situations where Green Deal finance alone will not deliver. Government recognises that Green Deal finance may not be appropriate for all households, particularly low income and vulnerable households who tend to

under-heat their homes. The ECO Affordable Warmth obligation<sup>33</sup> has been designed to provide support to these low income and vulnerable households.

38. We are proposing that (for households who are not eligible for Affordable Warmth<sup>34</sup>) ECO should not cover those measures which can readily be fully funded by Green Deal finance such as loft and standard cavity wall insulation (hard to treat lofts and cavity walls are discussed further below) as these measures are likely to be delivered by Green Deal finance alone. In fact these highly cost effective measures are likely to form the core component of any Green Deal package.
39. An alternative approach would be to allow some ECO subsidy to be directed towards low cost loft and cavity wall insulation. This approach might promote earlier delivery of these very cost effective measures, bringing forward cost effective carbon savings. Under the central demand scenario modelled for Green Deal and the ECO, allowing ECO subsidy for these measures would displace Green Deal finance meaning more of the costs would be passed through to all bill payers rather than falling on the direct beneficiaries; but if demand were low then support for these measures would bring about more cost-effective activity as a whole. There is also a risk that individuals would hold out for ECO support in the future meaning ECO targets could effectively act as a cap on delivery of loft and cavity insulation. We will consider these issues further during the consultation and welcome views on the best approach to deliver overall value for money.
40. Evidence in the impact assessment suggests that the next most cost effective carbon saving measures after those which are fully fundable by Green Deal finance are insulation systems for solid walled homes. We recognise that some other construction types exist throughout Great Britain which are not of solid wall construction but which are hard to treat and which do lend themselves to solid wall insulation (including both internal and external wall insulation).
41. There may be a role for ECO to help deliver other socially cost effective measures which cannot be fully financed by the Green Deal if such hard to treat measures could be distinguished at the point of assessment and would not undermine the Green Deal.
42. Focusing the ECO carbon saving target on solid wall insulation should lead to a similar market transformation to that already seen for lower cost technologies, increasing consumer awareness, scaling up delivery rates and driving down costs, while ensuring that quality standards remain high. As delivery costs come

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<sup>33</sup> This is referred to in the draft ECO Order accompanying this consultation as the “home heating cost reduction target” or the “home heating cost reduction obligation”. The former is the overall target set on all suppliers whilst the latter is the individual proportion of the overall target distributed amongst individual suppliers.

<sup>34</sup> Further information on ECO Affordable Warmth measures is covered below.

down, a larger proportion of the cost of each solid wall insulation job can be funded by Green Deal finance meaning a smaller ECO contribution will be needed, reducing the cost of the policy and the impact on all household energy bills.

43. Following a 'whole house' approach presents another opportunity to deliver more cost effectively. Specifying a suite of improvements for the same property at the same time means that improvements can be tailored to each other. This would avoid for example, an expensive, high output heating system being installed just before the heat requirements of a house drop due to a package of insulation being installed.
44. This approach also allows cost efficiencies in delivery to be identified. It is far more cost effective to install solid wall insulation and to upgrade glazing at the same time rather than to treat these as two separate jobs. However we do not want to create a possible perverse incentive for households to take out a very small amount of SWI as a route to levering in ECO subsidy for extra measures. To avoid this, we propose that, subject to the considerations above, the ECO Carbon Saving Obligation should only support solid wall insulation, or packages of measures which include solid wall insulation, and that where a package is delivered, the solid wall insulation must improve at least 50% of the exterior walls of the property which at the time of the installation are capable of receiving such treatment. Furthermore we propose that other measures within the package must be installed within 6 months of the SWI.
45. We further propose that within packages, support and ECO credit should only be attracted by measures which reduce the heat loss from a home rather than all possible energy efficiency measures, as previous obligations have done. This would translate to measures that improve insulation and air-tightness levels, thus ensuring that the ECO focuses on what is widely seen as the first step in the hierarchy for reducing building emissions: reducing energy demand.
46. To ensure ECO only supports measures that are both appropriate and additional we propose that all ECO carbon saving measures must also:
  - have been recommended as a suitable improvement measure during an assessment of that property (for example, a Green Deal assessment);
  - be "fixed" improvements to the property and not easy to remove or take out of service;
  - be installed by people with the appropriate Green Deal accreditation;
  - be accompanied by appropriate advice to the household on the proper way to maintain and use the energy efficiency measure, to ensure carbon savings are achieved.

**QUESTION 10: What innovative ways can the government use to encourage the uptake of a package of measures and could our existing proposals support this?**

### **Hard to treat cavities**

47. Experience from the Community Energy Saving Programme, CESP<sup>35</sup>, and evidence from the Impact Assessment, suggests that there are a number of cavity wall properties the installation of which would be socially cost effective, but do not pay for themselves through the Green Deal either because of high ‘hard to treat’ installation costs or high individual ‘hassle costs’.
48. In hard to treat cavity cases the best way forward may be cavity filling using non-standard products or techniques or to provide solid wall insulation. Such cases may well occupy an equivalent space on the MAC curve to “normal” solid wall insulation (see section 5 of the accompanying Impact Assessment), that is to say, they can almost but not quite pay for themselves and there is a case to allow a measure of ECO subsidy to tip the balance.
49. However, such properties are by definition not straightforward, and an initial assessment may classify them simply as cavity wall properties, making it difficult to be clear without further investigation whether solid wall insulation is the most appropriate technology or whether more technically complex cavity wall insulation is the most cost effective solution. Including such properties within the ECO risks complicating the scheme.
50. In considering ways in which the ECO might be broadened to support cavity wall installations that would not be fully fundable by Green Deal finance, it needs to be clear how such installations could be identified at the GD/ECO assessment and how their inclusion would impact on demand for the Green Deal.

**QUESTION 11: Please provide views on the potential inclusion of hard-to-treat cavities (and potentially other measures of a similar type), and proposals for how properties might be accommodated in the ECO without excessive complication or perverse consequences.**

### **ECO Affordable Warmth obligation – allowable measures<sup>36</sup>**

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<sup>35</sup> CESP is the obligation placed on electricity generators and energy suppliers under the Electricity and Gas (Community Energy Savings Programme) Order 2009 (S.I. 2009/1905)

<sup>36</sup> Allowable measures are what are referred to as “qualifying actions” in the draft ECO Order. Two types of “qualifying action” exist: a “carbon qualifying action” which contributes towards a supplier’s carbon emissions reduction obligation and a “heating qualifying action” which contributes towards a supplier’s home heating cost reduction obligation.

51. Given the objectives of the Affordable Warmth element of ECO to provide support to low income and vulnerable households who are struggling to stay warm, we propose including measures which allow such households to heat their home more affordably, i.e. at less cost.
52. In practice, the key improvements which are most cost effective at making a substantial difference are new heating systems and low cost insulation measures. However, the costs associated with these measures will preclude many low income and vulnerable households from being able to make the necessary upgrades to the fabric of their homes. Our analysis suggests<sup>37</sup> that heating and insulation will be, and should be, the most frequent measures delivered, although we do not propose to have a prescribed list of eligible measures.
53. Of course, only measures which can demonstrate their benefits via the means described in Chapter 1, which will form the basis of the ECO Affordable Warmth scoring methodology, will be able to be accepted by the ECO Administrator. The intention will be to ensure that only measures which are fixed improvements to the property such as gas boilers, cavity wall or loft insulation, and not easy to remove or take out of service, such as lighting products or shower heads are delivered, and to ensure product and installation quality standards are met. By not prescribing a list of measures, this does allow lower cost measures such as draught exclusion and hot water tank jackets to be promoted. However, we would only expect these to be delivered alongside more major insulation and heating measures. We would welcome views on whether a prescribed approach would be a better means of ensuring major measures remain the primary focus of the scheme.
54. While the current SAP methodology does not recognise any improvement brought by repairs or replacements to existing boilers (as the current SAP methodology makes no distinction between functioning and non-functioning heating systems – if the system is present, then it is classified as operational), repairs and replacements clearly make an important contribution to enabling households to heat their homes. Where boilers can be easily repaired, this is potentially a far more cost-effective means of enabling the household to heat the property more affordably than replacing the boiler altogether. There is therefore a good case for ensuring repairs can be counted as eligible measures, which could be done by allowing a proportion of the “points” value of a new boiler to be scored where a heating system has been repaired. Any boiler repairs would need to be assessed and carried out by a Gas Safe engineer.

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<sup>37</sup> Citation needed

55. Households who are not connected to the gas grid can still benefit from heating and insulation measures under the Affordable Warmth target. The Government recognise the potential benefits of promoting lower carbon heating sources, as an alternative to more traditional off-grid heating fuels, in these cases. However, at present, we do not have sufficient evidence<sup>38</sup> that ground or air source heat pumps provide a cost-effective and efficient solution for supporting the group of households that will be the focus of the Affordable Warmth target. Therefore we propose that while heat pumps and other low carbon heating sources should be eligible options, there should be no additional incentive supporting their delivery over more traditional approaches. We would welcome evidence relating to the reliability of renewable heating sources at reducing the amount households need to spend to heat their homes.

**QUESTION 12: We propose that the ECO Carbon Saving obligation should be achieved primarily by promoting and installing solid wall insulation. Should any other measures be supported, and how would these be defined?**

**QUESTION 13: For the ECO carbon saving obligation, we propose that any other carbon saving measures should only be eligible when delivered as part of a package with solid wall insulation. Do you have any suggestions for the criteria by which eligibility within packages should be restricted, explaining why you think any such restrictions should be included?**

**QUESTION 14: We propose that *any measure* should be allowed under the Affordable Warmth obligation, provided it allows eligible households to heat homes more affordably. If you disagree, or feel there are risks to this approach, please explain and set out any restrictions you believe should be put in place.**

**QUESTION 15: Do you have any suggestions for whether and how we should score, boiler repairs under the Affordable Warmth obligation, such that where repairs are more cost-effective than replacement systems, without significant impact on efficiency, these can be promoted?**

**QUESTION 16: We are proposing that any heating measures should be allowed under the Affordable Warmth obligation, including for households off the gas grid, and extra incentives should not be put in place for air or ground source heat pumps. Do you have any evidence to bring to bear on the performance of heat pumps to improve the ability of vulnerable households to heat their homes affordably?**

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<sup>38</sup> Cite

## **Joint funding and “additionality”**

56. It is inherent in the energy company obligation model that companies will normally deliver their obligations in the most cost-effective manner, reducing costs to themselves and positioning themselves more competitively in the energy supply market. They will therefore look to lever in joint funding for measures. Depending on tenure, this could be funding from the household, most likely in the form of Green Deal finance, funding from landlords (private or social); or even funding from local government or other government programmes such as energy efficiency programmes run by the Devolved Administrations.
57. Previous obligations suggest that the scope for such joint funding from lower income households (such as those proposed for the Affordable Warmth group) may be much less than from other households. While the availability of Green Deal finance may affect this position, for modelling purposes we have made the cautious assumption that Affordable Warmth measures will be 100% subsidised by the ECO suppliers. However we do not propose that this should be a regulatory requirement and there could be benefits if suppliers reduce the socialised cost of the obligation through securing joint finance.
58. There are some arguments for crediting the energy company with only a proportion of the savings an energy efficiency measure generates, this proportion being dependent on the level of funding they provided. However, when funding is provided through Green Deal finance the costs and the benefits of energy efficiency stay with the same household. When funding is provided under ECO, the costs are assumed to be passed on to all energy bill payers, while the benefits reside just with the households who receive measures. It therefore makes good sense to maximise Green Deal finance and minimise ECO contributions wherever practical. Providing only proportional credit for proportional funding would not drive this behaviour.
59. We therefore propose that energy companies should be able to jointly fund measures and receive full credit for the carbon or cost savings which the measure produces regardless of the proportion of funding that they contribute to its installation. This will encourage energy suppliers to both drive down delivery costs and to lever in supporting funding wherever possible. However, it is a fundamental feature of the legal and policy architecture of an obligation of this sort that it should create genuinely additional activity. Therefore it should not credit companies for activity which would have happened in the absence of the ECO.
60. In administering the scheme, it is important that the Administrator is satisfied that the ECO contribution is indeed material to the installation of the measure. It should be noted that additionality is a test which cannot be met when there is an

absolute regulatory requirement for the measure to be installed in any event. However, it can be met where a regulatory requirement is less than absolute, as the ECO contribution may then still have been necessary for the measure to be installed.

## 2.4 Green Deal and ECO Product Assurance

61. The product assurance requirements for the launch of the Green Deal and the ECO will not go beyond what is needed to help ensure that products installed with Green Deal finance are safe, durable and perform as intended. The proposed approach is to rely on existing standards, frameworks and legislation as far as possible, and to drive innovation.

62. The Green Deal Code of Practice will require products installed with Green Deal finance (including ECO support) to meet all relevant legal requirements such as Building Regulations. All products must already comply with existing legal requirements, however by specifying this in the Code of Practice, we are making clear that the requirements in the Code do not supercede or replace existing legal requirements.

63. The requirements in the Code fall into three main categories:

- We intend to make certain practises which industry already routinely carries out, such as “system-testing” and “Conformité Européenne (European Conformity) CE marking”, a Green Deal requirement help maintain standards and make the market for lower quality products less attractive;
- Where products already fall within the scope of another UK certification scheme, such as the product testing requirements in the Microgeneration Certification Scheme (or equivalent), they will have to fulfil the level of testing and certification specified in that Scheme;
- We intend to establish a mechanism for demonstrating compliance with the Code of Practice and to help provide greater clarity on which products can be installed with Green Deal finance.

### CE marking

64. CE (European Conformity) marking harmonises the testing and certification requirements for certain construction (and other products on the market) at the European level. CE marking requires a declaration of the characteristics of a product, including for example safety requirements, thermal performance, resistance to fire or structural strength.

65. Levels of “third party” assurance and certification required vary between measures and are set at a European level based on the risk the products pose (e.g. fire doors have high testing requirements). Discussions with industry representatives suggest that many products already have CE marking. Voluntary CE marking will be made mandatory shortly after the launch of the Green Deal from July 2013.

66. We will require all Green Deal products and components that are or will be subject to mandatory CE marking from 2013 to have CE marking. For manufacturers who are not currently CE marked but will be required to do so from July 2013, this means that if they want their products to be eligible they will need to “go early” and obtain a CE marking before it becomes mandatory. This is a pragmatic way to ensure that the basic characteristics of products used in the Green Deal are known to the installer and that the product has been subject to a harmonised assessment process.

### **Product certification for products without a harmonised European testing requirements**

67. There are a small number of measures or materials that do not have standards against which they can be CE marked (e.g. hemp and lime insulation) and so will not be caught by the requirement to CE mark. Currently, these industries commonly gain a UKAS accredited certification to replicate the declarations made for CE marking.

68. We intend to require that measures or materials falling outside of CE marking regime should be tested and certified to a CE equivalent level by UKAS accredited certification bodies. The measures this requirement applies to will be listed in the Code of Practice and the process for determining the “equivalent” testing requirements.

### **Systems testing**

69. Measures fall into three categories: single installed components (e.g. a roll of loft insulation), pre-built system (e.g. boilers) and built-up or in situ systems (e.g. external wall insulation). For built-up systems that are put together on site by the installer we will require the system to be tested, and for the testing to be certified by a UKAS accredited laboratory and/or equivalent certification body.

70. Our initial proposal is that external wall, internal wall and cavity wall systems should be tested and certified as a “system”. This means that the full system, rather than just the component parts and material have to be tested and certified together.

71. System testing will verify that the various components in the system work together as intended. This is already very common for certain measures (e.g. external wall insulation and cavity wall insulation) and could represent an increase in testing for others (e.g. roofing). Guarantee schemes for these measures generally require systems-testing as a condition for obtaining the guarantee.
72. A working group of industry representatives and certification bodies will be formed to make recommendations on the extent to which detailed testing requirements need to be specified. For example, for internal wall systems where no recognised testing standard exists. The group will also consider whether any other measures should be tested as a system and what the implications for the supply chain could be.

### **Declaring compliance**

73. We intend to make it a requirement that Green Deal Providers and installers can only use products or systems which are on a list held by the Green Deal Oversight Body on behalf of the Secretary of State). This will be a list of the products that manufacturers and suppliers confirm are “Green Deal ready”: that they meet the require of Annex D of the Code of Practice.
74. The process is yet to be fully defined. However, we propose that manufacturers and suppliers will be able to notify the Oversight Body that they wish to have their products and systems included on the list using a standard template which will be available on DECC’s and the Oversight Body’s website. In the template, manufacturers and suppliers will confirm that their products and systems meet the requirements of the Code of Practice. The Oversight Body will then enter the information onto an official database.
75. If the Oversight Body deems the information in the template to be insufficient to include the product or system on the list and/or confirm compliance, they will notify the relevant manufacturer or supplier.
76. The Oversight Body will have a target to review the template and either update the list with the relevant products or notify the applicant company that information is incomplete within 30 working days of receipt. All Green Deal participants can apply to the Oversight Body for access to the Products and Systems list.
77. This approach will help to give confidence to the other participants (such as installers) in the Green Deal that a product falls within a category of qualifying improvement and meets the required standards. This is important because Green Deal Providers could be required to cancel a Green Deal plan if it is later discovered that products were used that did not comply with the Code of

Practice.

78. While this is a form of self-certification, the Oversight Body will carry out spot-checks on listed products. Our intention is that any that are found not to comply with the Code can be removed from the list and that there will be a right to appeal.

79. We expect the database that will underpin the list to be operational and available for input from summer 2012. The templates will be designed with the assistance of the Construction Products Association and will be in place from March 2012 so that manufacturers can begin compliance checks.

**QUESTION 17: To what extent can existing product lists, such as the list of Microgeneration Certification Scheme compliant products be used as the starting point for the Green Deal Products list?**

### **Tackling the gap between theoretical savings and actual savings**

80. It is widely known that measures often perform differently in homes and businesses than in laboratory testing. There is often a gap between the “theoretical” energy savings and actual savings realised for lots of reasons, including how the measures are installed, whether the building is non-standard, and whether customers change their energy consumption patterns. We are conducting further research, for example on solid wall properties, to help to ensure the savings estimates that are used when calculating the amount of finance available are as accurate as possible.

81. It can be assumed that there will always be at least some difference between theoretical and actual savings. Rather than try to deal with this by placing ever more onerous testing requirements on suppliers, we are exploring the implications of applying an appropriate “in-use factor”. This would mean the savings estimates would be revised down by a specified percentage based on evidence and research, or where this does not exist, on the basis of expert judgement on the scale of the potential difference in performance. The reason is to ensure that savings estimates are not overly optimistic, resulting in inappropriate charges being applied to fuel bills.

82. We do not intend to take account of “active comfort taking” in the savings estimates as the assessment is based on the physical performance of the building. For example, if a person decides to take the benefit of installing measures by heating their home to a higher temperature, this possibility will not be included in the “in use factors”. However, consumers will be given clear advice on the possible impact on energy savings if they change their behaviour.

83. Draft “in use factors” would be based on recommendations made by a task group of experts which DECC will set up. The group will also advise on how to apply this safeguard, for example, whether it is appropriate or not change savings estimates in RdSAP and SBEM. DECC will informally consult with industry and the research community on the emerging levels and the results will be included in the Government’s response to the consultation document.

### **Recognising enhanced product and system performance**

84. It is our policy to drive innovation through the Green Deal and ECO. To facilitate this we propose to enable (on a voluntary basis) suppliers to have the performance of their specific products verified (as opposed to the generic measure) so that product-specific savings information can be used for the Golden Rule calculation. This approach will drive innovation within existing measures categories by officially recognising how products perform on the basis of verified evidence relating to that product. The mechanism could take of the form of varying the generic “in use factors” because the margin of error relating to the estimated savings will be narrower.

85. Manufacturers and suppliers will not be able to make claims without full certification. We will issue a tender for an organisation to develop a standardised methodology for verifying the performance of products. Certification will then need to be carried out by a UKAS accredited certification body or laboratory (or equivalent). This process will not require re-testing where product testing already carried out meets the standard set.

86. Green Deal Providers and installers will need to have access to the product data to determine whether the product or system they wish to use has a differentiated performance level. If yes, the Green Deal Provider cannot simply substitute one savings estimates for another. It is likely that a regular re-run of the EPC software will be needed to factor in the cumulative effect of the other recommended measures, and the physical characteristics of the property in question.

**QUESTION 18: Do you agree that allowing enhanced product performance to be recognised in the Green Deal financing mechanism is useful? Do you have any specific views on how this approach could be implemented**

## **2.5 Summary of the steps related to Green Deal Products and Systems**

1.	The product or system falls within a category of qualifying measure.
2.	The product or system falls within a category of qualifying measure which

	has been recommended during a Green Deal Assessment.
3.	The product or system complies with the requirements of the Green Deal Code of Practice.
4.	The product or system has been confirmed as being “Green Deal Ready” and listed by the Green Deal Oversight Body.
5.	Voluntary – suppliers opt to have enhanced product or system performance recognised for the Golden Rule calculation.

## 2.6 Supply Chain Analysis

### The scale of the opportunity

87. The Green Deal is designed to revitalise and drive a genuinely competitive and enduring market for energy efficiency. By stimulating growth, certain industry sectors and the economy can benefit as well as the customer. The scale of the opportunity is great.

88. Each part of the supply chain will have a role to play in creatively marketing and promoting the benefits of energy efficiency improvements to realise this potential. There are many homes and businesses that have not yet benefitted from even the most basic energy efficiency measures. For example:

- Around 6<sup>39</sup> million households have not had their lofts insulated to the recommended level;
- around 7 million solid wall have not been insulated, with a further 1 million timber clad solid wall buildings that could also benefit from insulation;
- Around 6 million households do not have double glazing in all their windows;
- Around 70% of English homes do not have a full set of heating controls.

89. There is also great potential for newer and emerging technologies in the market, and other measures which work in combination with other technologies to save more energy, such as flue gas heat recovery devices. As the market grows for these measures, we can expect they can be installed more cheaply and efficiently, and a greater proportion of the cost covered by Green Deal finance.

90. Whilst it is clear there is a large potential energy efficiency market, DECC is drawing together scientists, economists, and industry representatives to agree a common and more detailed picture of maximum extent of the work there is to do in different sectors, building types, and geographical locations. The results will be available in early 2012.

<sup>39</sup> The precise numbers can vary depending on the assumptions made. See the Impact Assessment.

## **Linking the Green Deal and the ECO**

91. Like any market, what is delivered under the Green Deal will be down to demand and supply. But it is clear that financiers and potential Green Deal Providers are aiming to deliver £billions of capital flows. Tough carbon and affordable warmth targets within the ECO will result in around £x billion being injected into the market and secure levels of installation activity. In addition, plans to introduce “interim obligations” (see page x for more discussion on interim obligations for the ECO) will ensure that for the sectors covered, the momentum is created early on.

## **Linking to the sustainability and other agendas**

92. There is also the opportunity to use the Green Deal to trigger interest in other types of improvements which are not technically eligible for Green Deal finance because they do not provide savings on the property’s energy bill. A good example are measures that save cold water in homes. Green Deal advice will encourage customers to think about their whole property and what can be done to improve energy efficiency and wider sustainability. Water companies and Green Deal Providers could create partnerships to see a range of work being done in the property all at the same time. Other examples are the provision of charging points for electric vehicles and sound-proofing alongside other insulation measures for properties in flight paths. We will continue to work with industry to see how the framework can enable such partnerships.

## **Working with the supply chain**

93. We have consulted with hundreds of organisations over the past year through official stakeholder forums, project teams, workshops, industry events and on a one-to-one basis. This has given us a good insight into the state of readiness of the supply chain and what Government can do to assist companies and organisations to gear-up.

94. For example, the Construction Products Association Green Deal team<sup>40</sup> has surveyed hundreds of manufacturers, distributors, installers and trade associations to gain an understanding of what the capacity of the supply chain is at present, and how quickly and effectively it could increase production and installation rates. In addition, the team has reviewed a number of recent industry reports to gain a rounded picture. A summary of the findings will be available alongside the Government’s response to the consultation. Early findings suggest that, overall, supply chain capacity is unlikely to be a barrier to delivery of Green Deal measures.

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<sup>40</sup> A team of industry representatives brought together by the Construction Products Association to help address Green Deal and ECO supply chain-related questions.

95. There are however some exceptions where more analysis is needed to understand what interventions could be required. For example, the number of external and internal wall insulation installers needs to increase over the next ten years to deliver the number of jobs needed to meet carbon budgets. The installation rate needs to increase at least ten-fold over time. We are working with the National Insulation Industry, INCA and others to ensure that there is an appropriate training infrastructure in place, and that the 1000 Green Deal apprenticeships announced in the Budget 2011, can be fully utilised.

### **What do participants have to do to be ready**

96. We understand that in order to prepare, those participating in the Green Deal need to understand what training or other requirements the Green Deal framework places on them. A number of papers have already been published on the Energy Bill website to update organisations on emerging policy decisions. One key area covered was to set out which measures will be qualify for Green Deal finance, so that the sectors concerned could begin to prepare. This consultation document and associated statutory instruments contains more detail detailed policy proposals.

97. We will continue to work closely with industry up to the launch of the Green Deal. so potential participants are able to meet their authorisation requirements in advance of the launch of the Green Deal.

### **Models for accessing the market**

98. DECC has created a framework that is very flexible so that participants in the Green Deal can decide what works for them, how they want to interact with customers, and who they want to partner with. For example, some companies may want to offer their customers a “one-stop-shop” service, while others may want to specialise in deliver of a particular service. The only limits set are where rules are needed to protect customers to create a level playing field, and to comply with legislation, for example, relating to consumer credit. These consumer protections necessitate certain minimum requirements. One critical requirement is that there must always be a Green Deal Provider who contracts with the customer to make the improvements, arranges the finance and who can help customers with problems if they occur.

99. We propose that any organisation can become a Green Deal Provider as long as they are authorised by the Secretary of State as being fit to perform this role. In deciding whether to grant authorisation, the Secretary of State will consider whether the applicant is likely to be able to fulfil the ongoing conditions of authorisation set out in the framework regulations, including adherence to the

Code of Practice. We are beginning to see a range of different types of companies and organisations indicating that they are gearing up to be Providers, including retailers, local authorities, distributors, installers, manufacturers and energy companies. A number of trade associations are also exploring this possibility.

100. We are also keen to ensure that smaller companies can benefit from the Green Deal market, The Federation of Master Builders (FMB) estimates that small building and contractor firms carry out approximately half of all repair, maintenance and improvement work in the UK, and employ around two thirds of the construction workforce. The SME builders' community and SMEs from all sectors with qualifying measures will therefore have an important role to play in the delivery of the Green Deal. In particular SME builders are very often the party in direct contact with householders and most familiar with the individual property, and are therefore well placed to advise householders on specific works that might be appropriate and to trigger Green Deals.

101. We are engaging with representatives of the SME community to share examples of innovative operating models and ways of accessing finance that are already being proposed, such as to create partnerships with larger organisations or local authorities, or the creation of consortia of organisations.

#### **Future publications to help industry gear-up**

102. We intend to produce a joint industry and Government Green Deal and ECO Guide intended to support companies in gearing up for delivery and to showcase examples of what some organisations are already doing to maximise the opportunities presented by the Green Deal. The Guide is expected to include the most up to date information on DECC's analysis of market potential, possible approaches for accessing finance, summarise the requirements for entering the Green Deal market and present case studies of delivery approaches.

#### **Creating capacity for future delivery**

103. In the Government's response to the Low Carbon Construction IGT report, Government committed to consider establishing an "existing homes hub" with industry and to report to the newly established Green Construction Board with their conclusions in autumn 2011.

104. The "hub" could provide a mechanism for sharing the latest research on energy efficiency, facilitating partnerships in the supply chain and creating joint government and industry solutions to delivering energy efficiency policy for the long-term. DECC is currently working with BIS and industry partners to develop a more detailed proposal with a view to take an "in-principle" decision on the establishment of a hub.

## Supporting innovation

105. DECC is keen to draw on the findings of other projects and programmes of work which are exploring the potential for innovation in products and production processes, and across the supply chain, for example, to help lower installation costs. Examples of some of the projects we are linked to include:

- DECC's £35 million Low Carbon Buildings Innovation Programme;
- DECC's 2050 Pathways Analysis;
- The Technology Strategy Board's Retrofit for the Future Project; and
- The Energy Technology Institute's Optimising Thermal Efficiency in the Built Environment project.

106. In addition, DECC is working with Foresight in the Department for Business, Innovation and Skills on a "horizon scan" for new energy efficiency technologies which could come onto the market in the future and what sorts of problems they may solve. Our objective is to ensure the Green Deal can "recognise" new products and product-related innovations in an appropriate way.